Developing Strategies for AIDS Prevention Research with Black and Hispanic Drug Users

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Synopsis

More than 8 of 10 intravenous drug users infected with the human immunodeficiency virus (HIV) are black or Hispanic. Recognizing that sociocultural factors affect HIV transmission, public health officials have called for interventions designed for ethnic-racial minority groups. Considered in this paper are the nature and extent of AIDS among ethnic-racial minorities and the cultural aspects of drug use and sexual behavior related to HIV transmission.

That drug users and their associates are practicing safer needle use is evident; that they are changing their sexual behavior is less so. Calling for rapid advances in knowledge and expanded efforts in intervention, Federal agencies have instituted numerous programs to support innovative research and demonstration projects in ethnic-racial minority communities. Needed are studies that (a) *describe the phenomena of drug use and sexual behavior among ethnic-racial minority populations,* (b) *establish the efficacy of culturally specific AIDS prevention strategies in drug treatment and community settings, and* (c) *demonstrate new ways of recruiting, treating, and reducing relapse among drug users.*

OBSERVING THE HIGH RATES of AIDS among black and Hispanic Americans, the Surgeon General has called for interventions to stop the spread of the human immunodeficiency virus (HIV) among these minority groups (*1*). Other public health officials have called for a range of interventions designed for high risk groups from ethnic-racial minority backgrounds (*1,2*). The urgency of the AIDS crisis requires that promising, if still unproven, risk reduction programs be expanded in ethnic-racial minority communities. To reach black and Hispanic Americans at risk for AIDS, testable, culturally specific interventions are needed (*3–5*). In this paper, we briefly describe the nature and extent of AIDS among ethnic-racial minorities, discuss cultural aspects of behavior related to HIV transmission, consider prevention issues applicable to minority risk groups, and offer suggestions for research on AIDS prevention among black and Hispanic drug users.

AIDS and IV Drug Use

Twenty-six percent of reported cases of AIDS occur among persons with a history of parenteral drug use (*6*). Excluding gay and bisexual drug users, about 19 percent of AIDS cases can be attributed to IV drug use (*6*). Studies of heroin addicts in New York City, northern New Jersey, and Puerto Rico have found prevalence rates of HIV infection that surpass 50 percent. HIV prevalence in similar samples in most cities outside the Northeast are considerably lower (*7*).

Black and Hispanic IV drug users. Of persons with AIDS, 26 percent are black and 14 percent are

Hispanic, although blacks constitute only 12 percent and Hispanics only 6 percent of the U.S. population (*6*). Among blacks and Hispanics with AIDS, 37 percent are heterosexual IV drug users, compared with 6 percent of heterosexual anglos (non-Hispanic whites) with AIDS (*6*). In New York City, persons from Hispanic or Afro-American backgrounds account for 86 percent of IV drug users with AIDS (*8*).

Among the drug using population, HIV prevalence among blacks and Hispanics is substantially higher than among whites, even when controlling for reported needle-sharing (*7,9,10*). There is no consensus as to whether black or Hispanic IV drug users are more prone to share needles than are addicts who belong to majority cultures (*11,12*), or whether other behavioral or biological cofactors (*13,14*) account for ethnic-racial differences in HIV prevalence. A study of patients at New York City's drug treatment agencies, for whom seropositivity rates among blacks and Hispanics were three times that among anglo patients, found that anglos were more than twice as likely as blacks and Hispanics to report using clean IV needles when injecting drugs (*15*). But other investigators have found either no relationship between ethnicity and needle sharing (*9*) or higher rates of sharing among anglos (*12,16*). In Dallas and New York, drug use severity, frequenting of shooting galleries, and sex partner's needle-sharing, but not demographic variables, discriminated needle-sharers from nonsharers (*17,18*).

Women and children. Sexual transmission of AIDS from infected females to males has been established (*19–22*). However, male-to-female transmission appears to be more efficient than the reverse, at least in the United States (*7,23,24*). Sexual contact with an infected male accounts for 29 percent of AIDS cases among females; of these, at least two-thirds are attributable to contact with IV drug users (*6,25*). Among New York City women with AIDS whose only risk indicator is being a sex partner of a member of a risk group, 85 percent are black or Hispanic (*8*). In the United States, three-fourths of children with AIDS are black or Hispanic (*1,6*); in New York City, 93 percent of children with maternally transmitted AIDS are black or Hispanic (*8*).

Disease progression. Among IV drug addicts, AIDS has been associated with high mortality rates. In New York City, the median survival of AIDS patients with opportunistic infections is perhaps only two-thirds as long as that of AIDS patients with a diagnosis of Kaposi's sarcoma, frequent among gay men with AIDS (*26*). Drug users tend to seek treatment late in the disease progression, but their comparatively worse survival rates are probably also linked to their overall poor health.

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Culture and Drug Use

Drug use patterns. Drug users are a diverse population, ranging from occasional users who may function well in society to street addicts who regularly commit crimes to support their habit (*27–29*). Similarly, former users vary from well-adapted persons without need for any pharmacological or psychological treatment, to psychiatrically disabled persons who will never function without psychological or pharmacological support. Comprehensive intervention strategies should be directed at persons along this continuum of drug use and psychological functioning. Effective interventions must be conceived with an understanding of the social and, arguably, ritual aspects of drug use (*30–32*). Increasing numbers of users are concerned about sharing needles (*33–35*), but "shooting galleries" or "drug bars"—settings with drug paraphernalia for use by customers—are still frequented by addicts on the East Coast (*10,36*).

Cultural determinants of IV drug use. Despite many attempts to explain drug use among minority populations, causal interpretations remain equivocal and controversial (*37*). It is plausible that disenfranchised ethnic-racial minority addicts perceive continued drug use differently than do majority culture persons with more hope and opportunity (*5,18,38*). However, once the addiction process is established, the pervasive adverse effects of opiate habituation may mask cultural determinants of addiction. Desmond and Maddux (*39*) concluded that "drug dependence itself, and the physical, mental and social changes which accompany it, represent outstanding common features among heroin users which outweigh the ethnic differences" (*39a*). Thus, understanding the cultural aspects of

. . . 'Changing risk related behavior . . . will be accomplished only with bold, creative, and culturally specific intervention efforts.'

drug use among black and Hispanic populations may have more implications for drug prevention than for treatment.

Cultural aspects of sexuality. Interventions must be guided by an understanding of how gender issues and sexual attitudes and behaviors are anchored in culture (*40–42*). Too often, the burden of self-protection falls on women who have little power to insist on the use of condoms (*43,44*). Most, but not all, observers would agree that the ideal of machismo is a powerful sociocultural determinant of Hispanic relationships that must be attended to in any intervention involving sexual behavior (*45–47*). Sociocultural influences that shape the sexual and gender role attitudes of black Americans also require understanding (*48–50*). For example, one study comparing addicts and nonaddicts found that black heroin-addicted women reported use of condoms at about one-third the rate of nonaddicts matched on age, ethnicity, and marital status (*42*). For black men, issues of sexuality and gender role attitudes may be tied to their relative powerlessness in controlling events in other domains (*51*).

The link between IV drug use and homosexuality is recognized as a contributing factor in the spread of AIDS (*6,11*), but the relationship between these risk elements has received relatively little attention. Among black or Hispanic IV drug users with AIDS, 16 percent report homosexual contacts; among anglo IV drug users, 56 percent indicate homosexual activity (*6*). Part of this apparent differential may be due to cultural proscriptions against admitting to homosexuality. In any case, the overlap between sexual and drug-use risk factors in ethnic-racial minority persons with AIDS is sufficiently large to warrant additional efforts that are specifically focused on gay and bisexual drug users (*13*).

Cutting across ethnic-racial considerations are sexual attitudes among persons from impoverished environments who are disproportionately affected by the AIDS epidemic. Compared with members of the middle class, persons from lower socioeconomic backgrounds tend to have less favorable attitudes toward condoms, discussion of birth control, and shared decision-making in matters of sexuality. Access to information and availability of contraceptive devices are important, but psychological and situational determinants may be more salient in decisions related to contraception (*52,53*).

Prevention for Blacks and Hispanics at Risk

Culturally specific interventions to prevent HIV transmission must be designed with the knowledge that underlying risk factors are behaviors that are disproportionately associated with ethnic-racial groups, but behaviors that are also prevalent in the majority culture (*54*). As they develop and test AIDS prevention strategies with ethnic-racial minority populations, public health specialists should be aware of existing approaches in service delivery, social supports among black and Hispanic Americans, group work with minority populations, community-based health approaches to behavior change, and issues of racism.

Extant ethnic-sensitive interventions. Black and Hispanic Americans are influenced by both traditional and majority culture beliefs and customs. Although lacking in specificity and strong empirical foundation, the literature on culturally sensitive counseling provides some guidance for planning and research in prevention (*5,38,39*). Effective interventions can alter specific elements of traditional culture according to the treatment objectives, without impugning their value and purpose in other societal contexts (*55,56*). For example, the risk that Hispanic males pose to others when they use drugs might best be approached from the standpoint of family responsibility. Prevention strategies that emphasize the man's role as head of the family are likely to be more effective than those which undermine patriarchal values. Informed observers call for strategies that provide ethnic-racial minority clients some immediate assistance or hope and offer behavioral alternatives consonant with the level of understanding and culture of the particular clinical population (*57,58*). In following such advice, interveners should be prepared to offer some kind of immediate assistance, communicate in readily understood terms, and neither accept nor reject any given behavior without understanding its cultural significance.

Qualitative research with Chicano ex-addicts suggests that learning theory, stated in terms of tecato (addict) subculture, is a useful way of understand-

ing addiction, abstinence, and relapse (*59*). According to this subculture, desire for heroin is metaphorically attributed to the junkie worm or "gusano" living within all recovering addicts. Consistent with relapse theory (*60*), the sleeping worm can be awakened when the recovering addict's thoughts and behaviors are triggered by internal or external stimuli. Similarly, the emphasis on spirituality in Narcotics Anonymous and many therapeutic communities is compatible with the therapeutic role that religion plays in the lives of black and Hispanic Americans (*61–64*).

Black and Hispanic support systems. Investigators have examined the influence of social networks on drug use and considered the potential of social supports in treating drug abuse (*65,66*). For example, Hawkins and Frasier (*67*) demonstrated that addicts who returned to opiate use were likely to report connections with persons who influenced them to use drugs. Their followup data on therapeutic community clients suggest that recovering addicts can replace network members with associates who do not support drug use. Drug users' risk-related behavior is related to their associates' efforts to avoid sharing of unsterilized needles and to their own perceptions as to whether drug using associates would be offended by refusals to share paraphernalia (*34,* and "Determinants of Needle Sharing among Intravenous Drug Users" by S. Magura, et al., Narcotic and Drug Research Inc., New York, unpublished manuscript).

Descriptive research evidences the importance of social support among black and Hispanic families (*3,44*). Most studies of help-seeking find that ethnic-racial minority persons are less likely than anglos to seek assistance from formal organizations (*68,69*). Hispanic Americans view the informal community as an extension of the family that may reinforce a person's own coping skills (*70*). For black Americans, the "family virtually stands alone as a care-giving institution created by black people for their survival in urban areas" (*71a*). AIDS risk reduction studies could test the effects of support networks on former addicts' initial detoxification and avoidance of relapse related to drug use and sexual behavior. Social support interventions might draw on the strengths of black and Hispanic parents, siblings, and extended kinship network members (*32,72,73*). Planned strategies could facilitate relationships like the extended kinship network to reinforce efforts to adopt safer sexual practices, drug use relapse pressures, and manage the fear of AIDS (*74*).

Community-level focus. Now gaining favor in the health promotion arena, community-based approaches to prevention have until recently received relatively less attention than programs based in schools, hospitals, and other institutional settings (*47,75*). Over the past 2 years, the National Institute on Drug Abuse and the Centers for Disease Control have awarded funds for a series of community-based AIDS prevention projects (*76,77*). In New York and other cities, minority communities have formed AIDS task forces that provide leadership and develop linkages between organizations. Member organizations include churches, nonprofit agencies, and business groups that have parallel and complementary roles in disseminating credible information, encouraging addicts to seek treatment, and altering risk behavior.

Group work with black and Hispanic Americans. Low-intensity messages delivered via posters, public service announcements, and large groups may not be sufficient for altering health behavior (*78*). Group approaches might enhance the efficacy of interventions that rely on information dissemination as the principal catalyst for behavior change. Although difficult to initiate and sustain, cognitive-behavioral groups facilitate acquisition of thoughts and skills necessary in translating information into behavior. Interventions designed for black and Hispanic IV drug users and their sexual partners might build on promising, albeit early, outcomes of culturally specific drug and pregnancy prevention efforts with adolescents (*79–81*). Focusing on issues such as economic hardship, help-seeking, and the need to exercise control over the environment, interveners have found that groups are useful vehicles for helping black and Hispanic Americans (*82–84*). Self-help, implicit in many potentially useful AIDS prevention strategies, has been used effectively with groups of Spanish-speaking immigrants and black job seekers (*85,86*).

Group leaders must understand universal principles of group process and their application with specific client groups (*82,87*). For example, Hispanics' concern with dignity and confidence may be manifested in the early stages of a group through courteous behavior and minimal self-disclosure (*88*). Experienced leaders of racially mixed groups advise that at least two members of each racial-ethnic group be represented to reduce the probability of scape-goating and to enable members to cross-validate the accuracy of their perceptions of social reality. By openly introducing the topic of

race in biracial groups, the leader relieves tension, models honesty, and sanctions the salient issue of race-ethnicity (*83*).

Racism. Interracial mistrust is a predictable concomitant of the present crisis, given the initial association of AIDS with gay anglo men, the disproportionate numbers of blacks and Hispanics affected, and minority persons' dependence on majority culture health care systems for information and treatment.

The degree of mistrust that interveners must overcome is suggested by the responses, albeit of a few persons, to the authors' pilot efforts in disseminating AIDS prevention information. Some members of a black and Hispanic community in New York City stated their belief that such activities are ineffective token efforts designed to give the appearance of dealing with a man-made virus. Other citizens were angry that their community was selected as a focus of the outreach effort and asserted that more affluent neighborhoods were not free of drugs and AIDS. Still other residents stated a belief that the AIDS crisis was a fictitious plague, conjured up to justify genocidal actions of the white majority. Assuredly, some segments of the majority culture hold similar beliefs, but the experiences of discrimination and economic disadvantage cause blacks and Hispanics to question statements from public officials. Effective interventions must anticipate and respond to such concerns, ideally through the efforts of skilled members of the affected ethnic-racial minority groups.

Agency collaboration. Efficacious AIDS prevention strategies will require investigators to develop intervention, evaluation, and followup protocols in close collaboration with agencies and organizations that work most directly with black and Hispanic drug users (*4,89*). In some instances, agency gate keepers will represent organizations or constituencies with long-standing grievances against universities or other institutions represented by researchers of the majority culture. Community service providers, who may have had unsatisfactory experiences with professionals and institutions identified with the majority culture, will want to protect research participants.

Before forming linkages with any agency or group, investigators should become familiar with the politics and recent history of social organizations in a given ethnic neighborhood. Drug treatment providers will often be interested in securing benefits for their organization or clientele (*90*). Local agencies may want to have their own staff involved in the conduct of proposed interventions, ensuring a degree of oversight and enhancing the skills of agency personnel. Conversely, some agencies may prefer to have outsiders conduct intervention and testing activities to avoid conflicts of interest. Community-based investigators are challenged to design protocols that can yield interpretable findings within the constraints imposed by collaborating agencies.

Reaching untreated addicts. Untreated addicts are difficult to contact, recruit, and maintain in any kind of continuing AIDS prevention program; nevertheless, some will respond to tenacious and consistent outreach efforts. ADAPT, a volunteer outreach organization in New York City that has developed a degree of trust with addicts, distributes condoms, bleach with instructions for cleaning IV drug use paraphernalia, and vouchers for access to drug treatment programs. Needle exchange or distribution efforts are gaining acceptance in several States, and these pragmatic if incomplete strategies will soon be added to the street worker's armamentarium. Recent reports from San Francisco indicate that street-based intervention has reduced needle sharing and, to a lesser extent, unprotected sex among addicts (*12*).

Ethnic-racial minority communities could be enlisted in efforts to recruit addicts and other risk groups into risk reduction programs. Churches are important, if largely untapped, dissemination resources (*91*). The Catholic Church is modifying its unequivocal stance against the use of condoms, but there is little evidence that either Protestant or Catholic churches within black and Hispanic communities are vigorously addressing issues related to sexual and intravenous transmission of HIV. Drug users are unlikely to respond to moralistic appeals from clergy, whether delivered directly or through family members who attend church. Nevertheless, church leaders are in a unique position to influence at-risk sexual partners and families of drug users. From the pulpit, and in informal visits to parishioners and discussions with other leaders, ministers and priests could disseminate facts and dispel misconceptions, thereby reinforcing messages from other sources and encouraging persons to seek additional information.

Print and electronic media serving black and Hispanic communities remain underused, and could also be enlisted in efforts to recruit larger numbers of addicts into treatment or AIDS prevention programs. Prevention programs could design, un-

derwrite, and disseminate television and radio announcements, newspaper and magazine ads, eye-catching posters, and colorful leaflets and wallet cards. Culturally appropriate examples of each of these communication devices have existed for several years, but AIDS messages are still not plentiful in many ethnic-racial minority communities. Although the efficacy of media messages is difficult to measure, outcome studies could draw upon designs employed in evaluations of other health promotion campaigns (*78,92*).

Recovering drug users. Because each infected drug user has the potential to infect several other people, even drug treatment programs with high failure rates may be relatively efficient weapons in the war against AIDS (*93*). Street addicts are most amenable to enrollment in substance abuse treatment when they come in contact with detoxification units, detention facilities, emergency rooms, or outreach workers. Although a shortage of treatment slots may be the most obvious barrier to treatment, many other variables influence drug users' willingness to enter programs (*94*). The AIDS crisis demands innovative and measurable strategies that both motivate and assist addicts in getting into treatment settings.

Virtually all drug treatment settings have AIDS information programs; some have comprehensive protocols that incorporate attitude and behavior change elements in the treatment programs. Because members of therapeutic communities (TCs) must comply with strict program requirements they may be amenable to individual and group efforts to alter high risk behavior. Although only a small fraction of TC residents complete treatment (*95*), graduates—many of them have gone on to become drug counselors—could influence untreated members of the drug using community (*96*). Patients on methadone, particularly those without job or child care commitments—who are also prone to share needles (see reference to unpublished report, page 5 by Magura and coworkers)—are available to participate in educational interventions. Unfortunately, patients are not always cognitively prepared to participate in educational interventions, either while waiting for their dose or immediately after taking methadone. Detoxification units could deliver intensive AIDS prevention interventions within the short span of 14-, 21-, or 28-day programs. Gains made in such programs are likely to have little potency unless detoxification clinics have tight linkages to outpatient or inpatient programs with their own AIDS prevention activities.

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Given these impediments, and the space limitations and patient-staff ratios of most drug treatment agencies, substantial resources must be added to these organizations if they are to offer more than information on risk behavior. Additional treatment slots and AIDS coordinators are becoming available, but expansion of drug treatment facilities remains a serious political problem. New York, New Jersey, and other States have demonstrated some flexibility in addressing the need for more drug treatment slots, but more solutions are needed. Testable innovations might include dispensing methadone to established, "low profile" patients in vans or satellite offices, expanding hours, or streamlining medication schedules.

Preventing relapse. Always a serious problem in drug treatment, relapse has added dimensions in the AIDS crisis that apply both to drug use and to sexual behavior and to their interaction. Crack use is associated with high risk sexual behavior and increased risk of syphilis. Crack enervates protective intentions, causes users to trade sex for drugs, and may result in heightened desire and sexual binges in crack houses (*98–100*). Syphilis, a genital ulcer implicated in the AIDS epidemic in Africa, is increasing in prevalence in the United States (*97*).

That crack is extremely addictive is undisputed. Early clinical reports assert that treated crack users are prone to relapse (*101*). Recovering crack addicts, as well as users of other drugs, are subject to many environmental influences that interact to undermine their intentions to avoid drugs and unprotected sexual activity. Programs to slow the spread of HIV in ethnic-racial minority communities should incorporate strategies that prepare recovering addicts for the likelihood of relapse in sexual and drug-using domains. Monitoring, followup, and ongoing support are integral to relapse prevention.

Sex partners. AIDS counselors currently inform sex partners at the request of infected persons at most

of the HIV counseling and testing centers. In some instances, at-risk sexual partners will be more receptive to interventions than drug users themselves. And spouses and partners may be able to persuade IV users to become involved in prevention and drug treatment programs.

To date, efforts to protect at-risk sexual partners have emphasized awareness of risks and information on protective methods and "safer sex" techniques that promote condom use. The efficacy of these strategies is open to question, given the known difficulties that persons from all sectors of society have in dealing with sexuality and birth control and the specific sociocultural impediments faced by black and Hispanic women. For some women, learning how to reduce contact with high risk partners may be more realistic and helpful than assertiveness training or advice on condom use (*102*). Needed are creative, rigorous, and ethical studies to assess the outcomes of interventions to slow transmission among sexual partners of drug users.

Researchers have begun to determine what precautions men and women at risk report taking after becoming aware of various options. Federal agencies have recently issued guidelines for studies that reduce seroconversion in couples with one HIV-infected partner. The most rigorous outcome indicator would seem to be seroconversion rates of initially uninfected partners. But another salient test of program efficacy may be the extent to which prevention specialists can recruit and maintain samples composed of black and Hispanic drug users and their sexual partners.

Conclusions

The AIDS epidemic will require a broad range of prevention studies involving black and Hispanic drug users and their sexual partners. The experience of recent decades offers ample evidence that drug use and sexual activity are extremely difficult to influence among persons of any ethnic-racial background. Although scientists increasingly have attended to social and health problems of ethnic-racial minority groups, few can claim major victories in altering disease or social problems among black or Hispanic Americans. Changing risk-related behavior among drug users and their sexual partners will be accomplished only with bold, creative, and culturally specific intervention efforts.

Even if sufficient resources were made available immediately, policy experts would have difficulty agreeing on which public health measures would be most effective in altering the course of HIV transmission among black and Hispanic communities. Before consensus can be achieved, scientists need to understand more about HIV transmission patterns among drug users and their sexual partners. Such epidemiologic and sociologic research efforts must be accompanied by multifaceted efforts to develop and test interventions in urban minority communities. Perhaps the guidelines offered in this article will encourage investigators to search for ways of slowing the spread of AIDS among black and Hispanic Americans.

References

1. Koop, C. E.: Surgeon General's report on acquired immune deficiency syndrome. Public Health Rep 102: 1-2, January-February 1987.
2. Hopkins, D. R.: Public health measures for prevention and control of AIDS. Public Health Rep 102: 463-467, September-October 1987.
3. Mays, V. M., and Cochran, S. D.: Acquired immunodeficiency syndrome and black Americans: special psychosocial issues. Public Health Rep 102: 224-231, March-April 1987.
4. Orlandi, M. A.: Community-based substance abuse prevention: multicultural perspective. J School Health 56: 394-401 (1986).
5. Tucker, M. B.: U.S. ethnic minorities and drug abuse: an assessment of the science and practice. Int J Addictions 20: 1021-1047 (1985).
6. Centers for Disease Control: AIDS weekly surveillance report. Atlanta, GA, June 6, 1988, pp. 1-5.
7. Centers for Disease Control: Human immunodeficiency virus infection in the United States: a review of current knowledge. MMWR 36 (Supp. No. S-6): 1-42, Dec. 18, 1987.
8. New York City Department of Health: AIDS Surveillance Unit: AIDS surveillance update. New York, May 25, 1988.
9. Chaisson, R. E., et al.: Human immunodeficiency virus infection in heterosexual intravenous drug users in San Francisco. Am J Public Health 77: 169-171 (1987).
10. Lange, W. R., et al.: The geographic distribution of human immunodeficiency virus markers in parental drug abusers. Am J Public Health 78: 443-446 (1988).
11. Friedland, G. H., et al.: Intravenous drug abusers and the acquired immune deficiency syndrome: demographic, drug use, and needle-sharing patterns. Arch Int Med 145: 1413-1417 (1985).
12. Watters, J. K., et. al.: HIV seroepidemiology and behavior change in intravenous drug users: progress report on the effectiveness of street-based prevention. Paper presented at the Fourth International Conference on AIDS, Stockholm, June 1988.
13. Craig, R. J.: MMPI-derived prevalence estimates of homosexuality among drug-dependent patients. Int J Addict 22: 1139-1145 (1987).
14. Selik, R. M., and Rogers, M. F.: Relative risks of AIDS for American blacks and Hispanics. *In* Abstracts from the III International Conference on AIDS, Washington, DC, June 1-5, 1987. U.S. Department of Health and Human Services and World Health Organization.

15. Schoenbaum, E. E., et al.: Prevalence of and risk factors associated with HTLV-III/LAV antibodies among intravenous drug abusers in a methadone program in New York City. Paper presented at the International Conference on AIDS, Paris, June 1986.
16. Prim, B. J., Brown, L., and Murphy, D. L.: Needle sharing and AIDS in minorities. JAMA 258: 1474–1475, Sept. 18, 1987.
17. Dolan, M. P., et al: Characteristics of drug abusers that discriminate needle-sharers. Public Health Rep 102: 395–398, July–August 1987.
18. Maddux, J. F., and Desmond, D. P.: Careers of opioid users. Praeger Publications, New York, 1981.
19. Chamberland, M. E., and Dondero, T. J.: Heterosexually acquired infection with human immunodeficiency virus (HIV). Ann Intern Med 107: 763–766 (1987).
20. Peterman, T. A., et al.: Risk of human immunodeficiency virus transmission from heterosexual adults with transfusion-associated infections. JAMA 259: 55–58 Jan. 1, 1988.
21. Redfield, R. R., et al.: Heterosexually acquired HTLV-III/LAV disease (AIDS-related complex and AIDS): epidemiologic evidence for female-to-male transmission. JAMA 254: 2094–2096, Oct. 18, 1985.
22. Van De Perre, P., et al.: Acquired immunodeficiency syndrome in Rwanda. Lancet No. 8394: 62–65, July 14, 1984.
23. Fischl, M. A., et al.: Evaluation of heterosexual partners, children, and household contacts of adults with AIDS. JAMA 257: 640–644, Feb. 6, 1987.
24. Centers for Disease Control: Heterosexual transmission of human T-lymphotrophic virus type III/lymphadenopathy-associated virus. MMWR 34: 561–563, Sept. 20, 1985.
25. Guinan, M. E., and Hardy, A.: Epidemiology of AIDS in women in the United States: 1981 through 1986. JAMA 257: 2039–2042, Apr. 17, 1987.
26. New York City Department of Health, AIDS Surveillance Unit: AIDS surveillance update. New York, Feb. 25, 1987.
27. Faupel, C. E.: Drug availability, life structure and situational ethics of heroin addicts. Urban Life 15: 395–419, January 1987.
28. Nurco, D. N., Cisin, I. H., and Balter, M. B.: Addict careers: I. A new typology. Int J Addict 16: 1305–1325 (1981).
29. Nurco, D. N., Cisin, I. H., and Balter, M. B.: Addict careers: II. The first ten years. Int J Addict 16: 1327–1356 (1981).
30. Kail, B. L., and Lukoff, I. F.: The black female addict's career options: a typology and theory. Am J Drug Alcohol Abuse 10: 39–52 (1984).
31. Mieczkowski, T.: Monroe in a Cadillac: Drug argot in Detroit. Int J Comp Appl Crim Just 10: 137–145 (1986).
32. Wurzman, I., Rounsaville, B. J., and Kleber, H. D.: Cultural values of Puerto Rican opiate addicts: an exploratory study. Am J Drug Alcohol Abuse 9: 141–153 (1982–83).
33. Drucker, E.: AIDS and addiction in New York City. Am J Drug Alcohol Abuse 121: 165–181 (1986).
34. Friedman, S. R., et al: AIDS and self-organization among intravenous drug users. Int J Addict 22: 201–219 (1987).
35. Institute of Medicine: Confronting AIDS. Harvard University Press, Cambridge, MA, 1986.
36. Duh, S. V.: Physician-patient communications: Sensitivity is what breaks cultural barriers [letter] Public Health Rep 102: 560, September–October 1987.
37. Johnson, B. J., and Nishi, S. M.: Myths and realities of drug use by minorities. *In* Drug use and abuse among U.S. minorities, edited by P. Iiyama, S. M. Nishi, and B. D. Johnson. Praeger Publications, New York, 1976, pp. 3–68.
38. Hanson, B.: Drug treatment effectiveness: the case of racial and ethnic minorities in America: some research questions and proposals. Int J Addict 20: 99–137 (1985).
39. Desmond, D. P., and Maddux, J. F.: Mexican-American heroin addicts. Am J Drug Alcohol Abuse 10: 317–346; (*a*) p. 341 (1984).
40. Fischer, G. L.: Hispanic and majority student attitudes toward forcible date rape as a function of differences in attitudes toward women. Sex Roles 17: 93–101 (1987).
41. Gilchrist, L. D., and Schinke, S. P.: Coping with contraception: cognitive and behavioral methods with adolescents. Cognitive Ther and Res 7: 379–388 (1983).
42. Ralph, N., and Spigner, C.: Contraceptive practices among female heroin addicts. Am J Public Health 76: 1016–1017 (1986).
43. Bandura, A.: Perceived self-efficacy in the exercise of control over AIDS infection. Paper presented at the National Institutes of Mental Health and Drug Abuse Research Conference on Women and AIDS: Promoting Health Behaviors, Bethesda, MD, September 1987.
44. Worth, D., and Rodguiez, R.: Latin women and AIDS. SIECUS Report: January–February 1987.
45. Baca Zinn, M.: Chicano family research: conceptual distortions and alternative directions. J Ethnic Stud 7: 59–71 (1979).
46. Cromwell, R. E., and Ruiz, R. A.: The myth of macho dominance in decision-making within Mexican Chicano families. Hispanic J Behav Sci 1: 355–373 (1979).
47. Falicov, C. J.: Mexican families. *In* Ethnicity and family therapy. Guilford, NY, 1982, pp. 134–163.
48. Furstenburg, F. F., Brooks-Gunn, J., and Morgan, S. P.: Adolescent mothers and their children in later life. Fam Plann Perspect 19: 142–151 (1987).
49. Weinberg, M. S., and Williams, C. J.: Black sexuality: a test of two theories. J Sex Res 25: 197–218 (1988).
50. Houston, L. N.: Romanticism and eroticism among black and white college students. Adolescence 16: 263–272 (1981).
51. Cazenave, N. A.: Black men in America: the quest for "manhood." *In* Black families. Sage Publications, Beverly Hills, CA, 1981, pp. 176–185.
52. Miller, W. B.: Why some women fail to use their contraceptive method: a psychological investigation. Fam Plann Perspect 18: 27–32 (1986).
53. Reis, J., Reid, E., Herr, T., and Herz, E.: Family planning for inner-city adolescent males: pilot study. Adolescence 22: 953–960 (1987).
54. AIDS and people of color: the discriminatory impact. Report of the AIDS Discrimination Unit of the New York City Commission on Human Rights. Commission on Human Rights, New York, 1986.
55. Rogler, L. H., Malgasy, R. G., Costantino, G., and Blumenthal, R.: What do culturally sensitive mental health services mean? Am Psychologist 42: 565–570 (1987).
56. Zayas, L. H., and Bryant, C.: Culturally-sensitive treatment of adolescent Puerto Ricans and their families. Child and Adolesc Soc Work J 1: 235–253 (1984).

57. Report of the Secretary's Task Force on Black and Minority Health, vol II. Crosscutting issues in minority health. U.S. Department of Health and Human Services, Washington, DC, 1985.
58. Sue, S., and Zane, N.: The role of culture and cultural techniques in psychotherapy: a critique and reformulation. Am Psychologist 42: 37–45 (1987).
59. Jorquez, J. S.: Heroin use in the barrio: solving the problem of relapse or keeping the tecato gusano asleep. Am J Drug Alcohol Abuse 101: 63–75 (1984).
60. Marlatt, G. A., and Gordon, J. R.: Relapse prevention. Guilford Press, New York, 1985.
61. Report of the Secretary's Task Force on Black and Minority Health. Vol VII. Chemical dependency and diabetes. U.S. Department of Health and Human Services, Washington, DC, January 1986.
62. Griffith, E. E., Young, J. L., and Smith, D. L.: An analysis of the therapeutic elements in a black church service. Hosp Community Psychiatry 35: 464–469 (1984).
63. Knox, D. H.: Spirituality: a tool in the assessment and treatment of black alcoholics and their families. Alcohol Treat Q 2: 31–44 (1985–6).
64. Pargament, K. I., et al.: The psychosocial climate of religious congregations. Am J Community Psychol 2: 351–381 (1983).
65. Fraser, M., and Hawkins, J. D.: Social network analysis and drug misuse. Social Service Rev 58: 81–97 (1984).
66. Schilling, R. F.: Limitations of social support. Soc Serv Rev 61: 19–31 (1987).
67. Hawkins, J. D., and Fraser, M. W.: Social support networks in treating drug abuse. *In* Social support networks: informal helping in the human services, edited by J. K. Whittaker and J. Garbarino, Aldine, New York, 1983. pp. 357–380.
68. Keefe, S. E., Padilla, A. M., and Carlos, M. L.: The Mexican-American extended family as an emotional support system. Human Organization 38: 144–152 (1979).
69. Vernon, S. W., and Roberts, R. E.: A comparison of Anglos and Mexican Americans on selected measures of social support. Hispanic J Behavioral Science 7: 381–399 (1985).
70. Report of the Secretary's Task Force on Black and Minority Health. Vol. I. Executive summary. U.S. Department of Health and Human Services, Washington, DC, 1985.
71. Martin, J. M., and Martin, E. P.: The helping tradition in the black family and community. National Association of Social Workers, Silver Spring, MD, pp. 66–95; (*a*) p. 67 (1985).
72. Baker, F. M.: Afro-Americans. *In* Clinical guidelines in cross-cultural mental health, edited by L. Comas Diaz and E. N. Griffith. John Wiley and Sons, New York, 1988, pp. 151–181.
73. Miller, S. O., and Cates, R. T.: Preventive programming in health and mental health for ethnic minorities. *In* Primary prevention approaches to the development of mental health for ethnic minorities: a challenge to social work education and practice, edited by S. O. Miller, G. S. O'Neal, and C. A. Scott. Council on Social Work Education, New York, 1982, pp. 52–76.
74. Sorensen, J. L., Gibson, D., Bernal, G., and Deitch, D.: Methadone applicant dropouts: impact of requiring involvement of friends or family in treatment. Int J Addict 20: 1273–1280, August 1985.
75. Lasater, T., et al.: Lay volunteer delivery of a community-based cardiovascular risk factor change program: the Pawtucket experiment. *In* Behavioral health: a handbook of health enhancement and disease prevention, edited by J. D. Matarazzo, S. M. Weiss, J. A. Herd, N. E. Miller, and S.M. Weiss. John Wiley and Sons, New York, 1984, pp. 1166–1170.
76. Mason, J. O., et al.: Current CDC efforts to prevent and control human immunodeficiency virus infection and AIDS in the United States through information and education. Public Health Rep 103: 255–260, May–June 1988.
77. Schuster, C. R.: Intravenous drug use and AIDS prevention. Public Health Rep 103: 261–266, May–June 1988.
78. Farquhar, J. W., et al.: The Stanford five city project: an overview. *In* Behavioral health: a handbook of health enhancement and disease prevention, edited by J. D. Matarazzo, S. M. Weiss, J. A. Herd, N. E. Miller, and S.M. Weiss. John Wiley and Sons, New York, 1984, pp. 1154–1165.
79. Botvin, G. J.: Substance abuse prevention research: recent developments and future directions. J Sch Health 56: 369–386 (1986).
80. Schinke, S. P., Schilling, R. F., and Gilchrist, L. D.: Hispanic and black adolescents, prevention, and health promotion. Behav Med Abstr 7: 109–114 (1986).
81. Schinke, S. P., et al.: Preventing substance abuse with American Indian youth. Soc Casework 66: 213–217, April 1985.
82. Acosta, F. X., and Yamamoto, J.: The utility of group work practice for Hispanic Americans. Soc Work Groups 7: 63–73 (1984).
83. Davis, L. E.: Essential components of group work with black Americans. Soc Work Groups 7: 97–109 (1984).
84. Freeman, E. M., and McRoy, R.: Group counseling program for unemployed black teenagers. Soc Work Groups 9: 73–89, spring 1986.
85. Gilchrist, L. D., Lodish, D., Staab, S., and Schinke, S. P.: Learning the ropes: job-seeking skills for teenage mothers. *In* The second mile: contemporary approaches in counseling young women. edited by S. E. Davidson. New Directions for Young Women, Tucson AZ, 1983, pp. 1–32.
86. Leon, A. M., Mazur, R., Montalvo, E., and Rodrieguez, M.: Self-help support groups for Hispanic mothers. Child Welfare 63: 261–268 (1984).
87. Acosta, F. X., Yamamoto, J., Evans, L. A., and Skilbeck, W. M.: Preparing low-income Hispanic, black, and white patients for psychotherapy: evaluation of a new orientation program. J Clin Psychol 39: 872–877 (1983).
88. Delgado, M.: Activities and Hispanics: issues and suggestions. Soc Work Groups 6: 85–96 (1983).
89. Mantell, J. E., Schinke, S. P., and Akabas, S. H.: Women and AIDS prevention. J Prim Prev. In press.
90. Schilling, R. F., et al.: Social work research in service agencies: issues and guidelines. J Soc Serv Res. In press.
91. Carnegie Corporation of New York: Black churches: can they strengthen the black family? Carnegie Q 33: 1–7 (1987–1988).
92. Flay, B. R.: Mass media and smoking cessation: a critical review. Am J Public Health 77: 153–160 (1987).
93. Kerr, P.: Shortage of drug treatment imperils AIDS control. New York Times, Oct. 4, 1987, p. 32.
94. Watters, J. K.: Preventing human immunodeficiency virus contagion among intravenous drug users: the impact of street-based education on risk behavior. Paper presented at

the Third International Conference on AIDS: Washington, DC, June 1987.
95. De Leon, G., and Schwartz, S.: Therapeutic communities: what are the retention rates? Am J Drug Alcohol Abuse 10: 267-284 (1984).
96. Galea, R. P., Lewis, B. F., and Baker, L. A.: Voluntary testing for HIV antibodies among clients in long-term substance-abuse treatment. Soc Work 33: 265-268 (1988).
97. Innercity heterosexual transmission reason for concern: CDC's Curran. AIDs Update 1(17): 1-2 (1988).
98. Bowser, B.: Crack and AIDS: an ethnographic impression. Multicultural Inq Res on AIDS 2: 1-2 (1988).
99. Kerr, P.: Syphilis surge with crack use raises fears on spread of AIDS. New York Times, June 24, 1988, p. B1.
100. Stall, R., et al.: Alcohol and drug use during sexual activity and compliance with safe sex guidelines for AIDS: the AIDS behavioral research project. Health Educ Q 13: 359-371 (1986).
101. Spitz, H. I., and Rosecan, J. S.: Overview of cocaine abuse treatment. *In* Cocaine abuse: new directions in treatment and research. Brunner/Mazel Publishers, New York, 1987, pp. 97-118.
102. Shernoff, M.: Integrating safer-sex counseling into social work practice. Soc Casework 69: 334-339 (1988).

A Price Index for Biomedical Research and Development

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Synopsis

Price changes of goods and services used in biomedical research and development have important effects on the costs of conducting research. We summarize the trends suggested by a recently constructed biomedical research and development price index, which measures the effects of price changes on the inputs to biomedical research from 1979 to 1986. The fixed-weighted index uses fiscal year 1984 National Institutes of Health expenditure patterns in developing the weights.

The rate of increase shown in the price index peaked in 1981 and slowed in following years. However, in most years, the rate of increase in the price index has exceeded the rate of increase in other major price indexes, such as the consumer price index, the producer price index, and the Gross National Product fixed-weighted price index.

A RECENTLY CONSTRUCTED price index measures the effects of price changes on the inputs to biomedical research from 1979 to 1986.

The Biomedical Research and Development Price Index (BRDPI) shows, for most years, a rate of increase that exceeds the rate of increase of other major price indexes, such as the consumer price index (CPI), the producer price index (PPI), and the Gross National Product (GNP) fixed-weighted price index.

BRDPI is a fixed-weighted index (Laspeyres formulation) that uses patterns of expenditures by the National Institutes of Health (NIH) to determine the weights. A Laspeyres index holds quantities fixed over time and is essentially the type of index used by the Bureau of Labor Statistics in estimating the CPI and the PPI. Its formulation is

$$I = \frac{\Sigma P_{i2} q_{i1}}{\Sigma P_{i1} q_{i1}} \quad (1)$$

where: I = Laspeyres index; P_{i1} = price of item i in period 1; P_{i2} = price of item i in period 2; q_{i1} = quantity of item i in period 1. Quantities are held fixed at period 1 levels. The product of quantity times the items' price is summed across items to determine the index. An algebraically equivalent way to express the index is

$$I = \Sigma R_i w_i \quad (2)$$